

Subject: Agricultural and Horticultural Science

Level: 2

Standards: 91290, 91294, 91297

Part A: Commentary

Candidates should read the entire question to ensure that they understand what the question requires them to do before selecting their management practices. The management practices / land use / livestock species need to be carefully selected so that they are relevant to that question and there is sufficient depth for the candidate to discuss, enabling them to reach merit and excellence levels.

Overall, the biggest limiting factor appeared to be that candidates selected examples / contexts / management practices that were not relevant to the question. Some examples are; discussing external parasites when the question referred to internal parasites, or discussing the chemical properties of soil rather than physical as the question asked for. Candidates can improve their examination performance by linking management practices with the scientific, social, economic, and environmental factors to explain why these management practices are carried out.

Part B: Report on standards

91290: Demonstrate techniques used to modify the physical factors of the environment for NZ plant production

Examination

This standard tested whether candidates understood how a farmer could modify the farm's physical environment by using different techniques to improve plant growth, quality, quantity and timing, and thus improve the economics of the farm by producing a marketable product.

Observations

Candidates focussed mainly on the impact each practice has on the wider, external environment, e.g. plastics, and fossil fuels. They must remember that the word, 'environment' is also talking about the physical environment of the farm, which influences the growth of the plant being studied.

In a commercial business, farmers are looking for economic viability. When focused on how the practice impacts on the wider environment, sometimes the answers given were unrealistic compared to a commercial situation. For example, many candidates talked about the impact helicopters have on the environment with regard to fuel emissions, but did not

give another option, or talk about the fact that without protection they would often end up having no crop and therefore no income.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- described at least one technique about an environmental factor
- refer to how an environmental factor influenced plant growth in basic terms.

Candidates who were awarded **Not Achieved** commonly:

- were only able to give a limited discussion about management practices used to modify the physical environment
- were unable to give any techniques used to modify the physical environment.

Candidates who were awarded **Achievement with Merit** commonly:

- explained in detail how the technique influences plant growth and therefore the quality, quantity and timing in which the grower or farmer would expect to achieve a marketable product using this technique.

Candidates who were awarded **Achievement with Excellence** commonly:

- were able to justify how the techniques influence the economics of the farm.
- explained how techniques influenced the community and the wider environment
- justified the technique in order to create a marketable commodity.

91294: Demonstrate understanding of how NZ commercial management practices influence livestock growth and development examination

Examination

The examination consisted of three questions. The first question required the candidate to apply their understanding of management practices relating to management of temperature.

The second question required the candidate to apply their understanding of management practices relating to the control of internal parasites.

The third question required the candidate to apply their understanding of the impact of genetic selection on the economics of production and quantity.

Observations

This examination allowed for a range of potential responses enabling candidates to discuss a variety of different livestock species. A few candidates struggled with Question Three. These candidates described non-genetic characteristics or management practices, rather than genetic characteristics.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- described management practices used to manage temperature that influenced growth and development
- described a health issue caused by an internal parasite and how it affected growth and development
- described genetic characteristics selected by farmers.

Candidates who were awarded **Not Achieved** commonly:

- only superficially described management practices and did not relate to growth and development
- described external parasites or non-genetic characteristics
- used the same management practice, i.e. natural shelter and artificial shelter for shearing and not shearing.

Candidates who were awarded **Achievement with Merit** commonly:

- explained why management practices are carried out and relate them to growth and development
- linked management practices to food intake and utilisation and the effect on growth and development.

Candidates who were awarded **Achievement with Excellence** commonly:

- evaluated management practices used in terms of economics, timing, quality, and quantity
- used facts and figures to back up statements made to evaluate management practices.

91297: Demonstrate understanding of land use for primary production in New Zealand

Examination

The examination consisted of three questions and candidates were required to respond to all three.

The first question required the candidate to apply their understanding of intensification, and the implications of reducing intensification.

The second question required the candidate to apply their understanding of the reasons behind traditional land use and why a farmer / grower may change to a new production type.

The third question required the candidate to discuss the risks to, and opportunities of land use for a selected region.

Observations

Candidates listed factors influencing land use but did not explain why or how this made land more suitable, e.g. linking rainfall to plant requirements such as photosynthesis. Some answers did not contain evidence that matched the questions. There was a poor understanding of key terms such as intensification, traditional, risks and opportunities. Candidates needed to provide more specific evidence regarding the regions chosen.

Candidates who did well in Question 1 were able to understand that if forestry was chosen as a method of reduced intensity, it would provide no returns for 25–30 years and this would impact the yearly income for farmers.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- explained the impacts of intensification / deintensification
- could explain two reasons why a region has been traditionally used for a specified land use
- were able to explain a risk and opportunity in terms of land use for a selected region.

Candidates who were awarded **Not Achieved** commonly:

- could identify but not explain the impacts of intensification / deintensification
- did not recognise specified land use
- stated possible land use but failed to address a risk and opportunity.

Candidates who were awarded **Achievement with Merit** commonly:

- explain in detail (for example the change in nitrogen use / loss) the impacts of intensification / deintensification
- explain in detail why a region has been traditionally used for a specified land use and/or why a producer may change land use
- explain in detail a risk and opportunity in terms of land use for a selected region.

Candidates who were awarded **Achievement with Excellence** commonly:

- discuss the impacts of intensification / deintensification in terms of any two factors from economic, environmental and workforce factors
- discuss why a producer might change land use with reference to any two factors from economic, technological, and social factors
- discuss the risks and opportunities in terms of land use in terms of any two factors from economic, technological, and social factors.